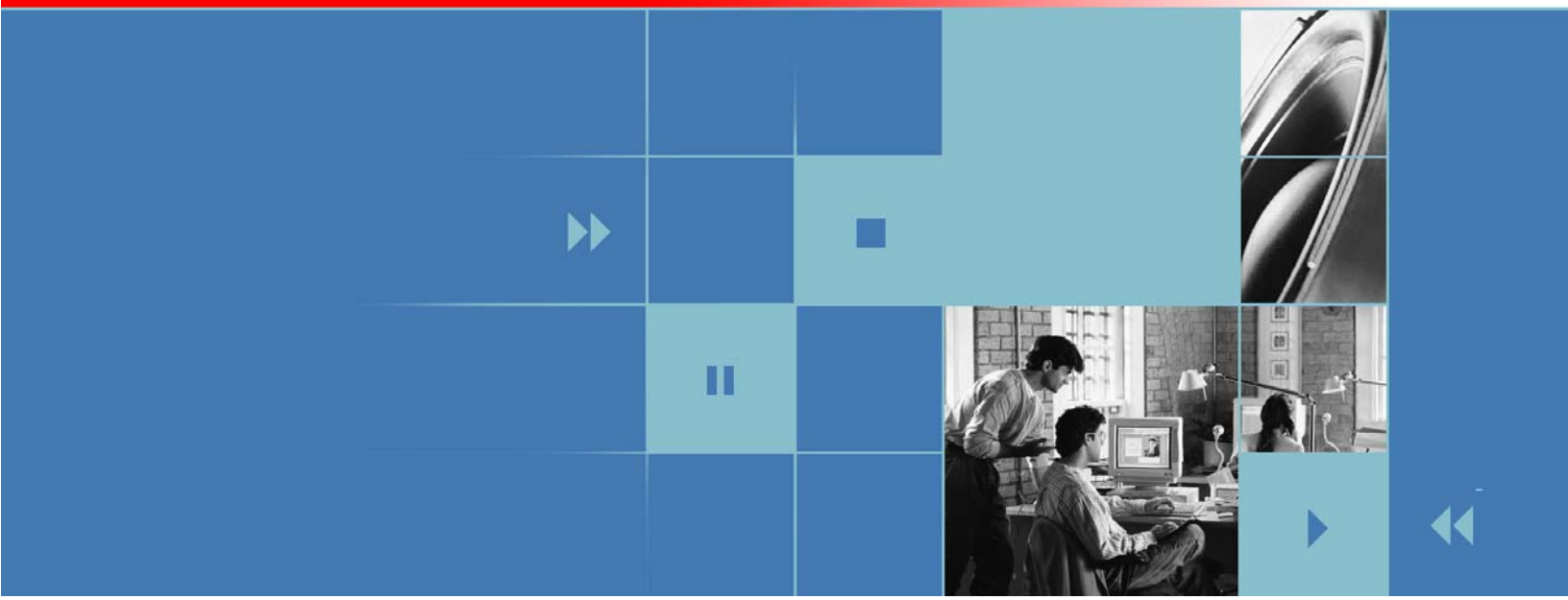


Hardware Installation Guide for the Polycom SoundStructure C16, C12, C8, and SR12

1725-33169-001
Revision A

POLYCOM®

Trademark Information

Polycom®, the Polycom logo design, SoundPoint® IP, SoundStation®, SoundStation VTX 1000®, ViaVideo®, ViewStation®, and Vortex® are registered trademarks of Polycom, Inc. Polycom HD Voice™, Conference Composer™, Global Management System™, ImageShare™, Instructor *RP*™, iPower™, MGC™, PathNavigator™, People+Content™, PowerCam™, Pro-Motion™, QSX™, ReadiManager™, Siren™, StereoSurround™, V²IU™, Visual Concert™, VS4000™, VSX™, SoundStructure™, and the industrial design of SoundStation are trademarks of Polycom, Inc. in the United States and various other countries. All other trademarks are the property of their respective owners.

Patent Information

The accompanying product is protected by one or more U.S. and foreign patents and/or pending patent applications held by Polycom, Inc.

Disclaimer

Some countries, states, or provinces do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages for certain products supplied to consumers, or the limitation of liability for personal injury, so the above limitations and exclusions may be limited in their application to you. When the implied warranties are not allowed to be excluded in their entirety, they will be limited to the duration of the applicable written warranty. This warranty gives you specific legal rights which may vary depending on local law.

Copyright Notice

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the “Software”), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED “AS IS”, WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

© 2007 Polycom, Inc. All rights reserved.

Polycom Inc.
4750 Willow Road
Pleasanton, CA 94588-2708
USA

No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of Polycom, Inc. Under the law, reproducing includes translating into another language or format.

As between the parties, Polycom, Inc. retains title to, and ownership of, all proprietary rights with respect to the software contained within its products. The software is protected by United States copyright laws and international treaty provision. Therefore, you must treat the software like any other copyrighted material (e.g. a book or sound recording).

Every effort has been made to ensure that the information in this manual is accurate. Polycom, Inc. is not responsible for printing or clerical errors. Information in this document is subject to change without notice.

Contents

Preparing For Installation 1–1

Overview 1–1

Product Features 1–2

Installation Overview 1–2

Package Contents 1–3

Tools Needed For Installation 1–5

Safety Recommendations 1–5

General Site Requirements 1–6

Power Supply Considerations 1–6

Installing The SoundStructure C16, C12, C8, And SR12 2–1

Panel Diagrams 2–1

Front-Panel 2–2

Rear Panel 2–3

Installing The Hardware 2–3

Plug-in Card Installation 2–4

Rack-Mounting The Polycom SoundStructure Device 2–6

Connecting To The LAN Interface 2–7

Connecting To Other Polycom Equipment With Conference Link2 2–7

Using Multiple SoundStructure Devices With OBAM Link Interface 2–9

Connecting IR Port To Optional Receiver And/Or RS-232 To Control System 2–12

Making Audio Connections 2–14

Connecting Logic Ports 2–15

Powering Up The System 2–19

Configuring The SoundStructure Devices 2–20

Specifications 3–1

Technical Specifications 3–1

Pin Out Summary 3–4

Conference Link2 3–4

OBAM Link 3–5

IR Receiver 3–6

RS-232 3–6

Logic Interface 3–7
Audio Connections 3–8

Logic Examples 4–1
Logic Input 4–1
Contact Closure 4–1
Logic Output 4–2
SoundStructure Powered Relay 4–2
Externally Powered Relay 4–2
Driving An LED 4–3
Logic Input And Output 4–4
Push To Talk Microphones 4–4
Analog Gain Control 4–5

Accessories 5–1

Regulatory Notices And Warranty Information 6–1
Regulatory Notices 6–1
USA And Canada 6–1
Exhibit J - Customer Information 6–2
Data Equipment 6–3
Canada 6–3
EEA (European Economic Area) Including Switzerland 6–4
Australia 6–8
Japan (VCCI) 6–8
Korea 6–9
Rest Of World 6–9
Warranty Information 6–10

1

Preparing For Installation

This chapter introduces the Polycom® SoundStructure™ C16, C12, and C8 audio conferencing devices, and the SoundStructure SR12, a sound reinforcement product which is compatible with the Polycom SoundStructure C16, C12, and C8.

This chapter contains the steps to follow before installing this new hardware and includes information on:

- Overview
- Installation Overview
- Tools Needed For Installation
- General Site Requirements

To install the Polycom SoundStructure hardware, refer to Installing The Hardware on page 2-3.

Overview

The Polycom SoundStructure C16, C12, and C8 audio conferencing devices are audio processing devices that have 16 inputs and 16 outputs (C16), 12 inputs and 12 outputs (C12), and 8 inputs and 8 outputs (C8).

The C16, C12, and C8 versions of this product line features acoustic echo cancellation (AEC), noise cancellation, automatic microphone mixing, matrix mixing, equalization, feedback elimination, dynamics processing, delay, and submix processing.

The SR12 does not include acoustic echo cancellation processing but does includes noise cancellation, automatic microphone mixing, matrix mixing, equalization, feedback elimination, dynamics processing, delay, and submix processing.

All the SoundStructure products provide 24-bit A-D/D-A subsystems, 48 kHz sampling, and a dynamic range exceeding 100 dB. Two different Public Switched Telephone Network (PSTN) interfaces, a single-line and dual-line, are available.

Product Features

The Polycom SoundStructure C16, C12, C8 and SR12 offer the following features:

- 16 (C16), 12 (C12 and SR12), or 8 (C8) balanced Microphone/line-level inputs
- 48 V phantom power available on all inputs
- 16 (C16), 12 (C12 and SR12), or 8 (C8) balanced line-level outputs
- Rear-panel Ethernet and RS-232 interfaces
- Optional telephone interface cards
- High-speed OBAM link to connect up to eight SoundStructure devices (requires firmware v1.1 or higher)
- High-speed link to connect directly to Polycom HDX video codecs

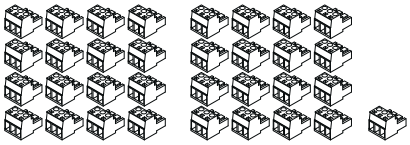
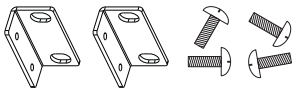
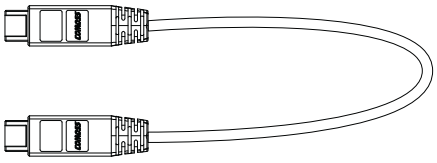
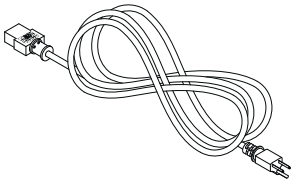
Installation Overview

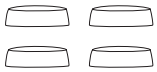
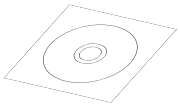
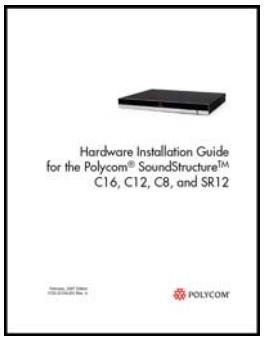
To prepare for the installation of the Polycom SoundStructure hardware:

- Review the safety information in Safety Recommendations on page 1-5, and in Regulatory Notices And Warranty Information on page 6-1.
- Unpack the hardware carefully. The contents included in the shipping container are listed in the next section, Package Contents, and Tools Needed For Installation on page 1-5. If any components are missing, contact your Polycom reseller.

Package Contents

The SoundStructure products include the components shown below.

SoundStructure Device	
3.5mm Terminal Blocks	
Rack Ears and Rack-Mounting Screws	
12” OBAM Cable	
Power Cable	
Conference Link2 insert plugs	

Rubber Feet	
18” Conference Link2 Cable	
Software CD	
Hardware Installation Guide	

The SoundStructure C16, C12, SR12, and C8 devices have 33, 25, 25, and 17 terminal block connectors respectively including one for the optional IR receiver accessory.

For a complete list of available SoundStructure Accessories, see Accessories on page 5-1.

Tools Needed For Installation

The following tools will be required to install your Polycom SoundStructure unit:

- A Phillips head screwdriver for installing rack ears and rack-mounting the device.
- A small blade screwdriver for terminating audio cables to the terminal blocks.

Safety Recommendations

Read and understand the following instructions before using the system:

- Always disconnect the system from power before inserting plug-in cards into the SoundStructure device.
- Only connect the system to surge protected power outlets.
- Only use electrical extension cords with a current rating at least equal to that of the system.
- Always disconnect the system from power before cleaning and servicing and when not in use.
- Do not spray liquids directly onto the system when cleaning. Always apply the liquid first to a static free cloth.
- Do not immerse the system in any liquid or place any liquids on it.
- Do not disassemble this system. To reduce the risk of shock and to maintain the warranty on the system, a qualified technician must perform service or repair work.
- Keep ventilation openings free of any obstructions.
- If the system or any accessories are installed in an enclosed space such as a cabinet or equipment rack, ensure that the air temperature in the enclosure does not exceed 40° C (104° F). Forced cooling may be required to keep the equipment within its operating temperature range.

Save these safety instructions.

General Site Requirements

Please ensure the SoundStructure side ventilation holes have at least 1 inch of clearance from the sides of the rack to allow airflow through the device. Failure to maintain clearance for airflow may increase the operating temperature of the unit beyond its maximum operating temperature of 40° C (104° F).

With the proper side clearance, each SoundStructure device requires one rack space and does not require additional empty rack spaces above or below the device. When mounting with other equipment give consideration to having access to the audio connectors on the rear-panel.

When using SoundStructure with Polycom HDX video codecs, it is recommended that the SoundStructure devices be installed above the video codec.

If you are placing the device on a tabletop or other flat surface (rather than rack- mounting it), it is recommended to mount the adhesive rubber feet on the bottom of the device as shown in Rack-Mounting The Polycom SoundStructure Device to prevent damaging the finish of the furniture surface.

Power Supply Considerations

The Polycom SoundStructure C16, C12, C8 and SR12 have the following power requirements on the line power supplied to the devices:

- Input voltage of 90-250 VAC; 50-60 Hz
- Line power requirements (including 0.6 PF):
  - 130 VA (C16),
  - 115 VA (C12),
  - 105 VA (SR12),
  - 95 VA (C8)

2

Installing The SoundStructure C16, C12, C8, And SR12

This chapter provides information on the Polycom SoundStructure product, rack-mount, and installation procedures.

- Panel Diagrams
- Installing The Hardware

Panel Diagrams

This section describes the front and rear-panels of the Polycom SoundStructure C16.

The graphics shown in this guide show the Polycom SoundStructure C16 audio conferencing device. The SoundStructure C12, C8, and SR12 are all very similar in appearance to the C16.

Front-Panel

The front-panel of the Polycom SoundStructure C16 is shown below with the front panel door open, revealing the serial number label and the System Status LED.

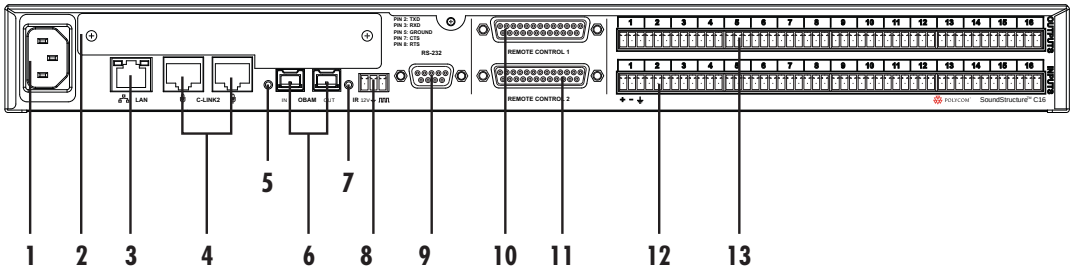
Front-Panel LED Interpretation

The front-panel LEDs are interpreted as follows:

LED	Color	State	Description
Status	Green	Flashing	The system is starting up.
		Solid	The system is operating normally.
	Yellow	Solid	The system has logged a warning and the system logs should be reviewed.
	Red	Solid	A system component has failed and requires immediate attention.

Rear Panel

The rear-panel of the Polycom SoundStructure C16 is shown in the following figure.



1	AC power connection	**8**	IR receiver interface
2	Expansion slot for SoundStructure plug-in cards	**9**	RS-232 interface
3	Ethernet interface	**10**	Logic input and output connector
4	Conference Link2 (CLink2) interface	**11**	Logic input and output connector 2
5	OBAM input status LED	**12**	Balanced audio input connectors
6	OBAM input and output ports	**13**	Balanced audio output connectors
7	OBAM output status LED		

Installing The Hardware

To install a SoundStructure device, follow these steps:

- Install optional plug-in card. (See page 2-4.)
- Mount the SoundStructure device onto an equipment rack or other location. (See page 2-6.)
- Connect to LAN for control management. (See page 2-7.)
- Use Conference Link2 to connect to Polycom HDX system. (See page 2-7.)
- Use OBAM to connect multiple SoundStructure devices. (See page 2-9.)
- Connect IR port to optional receiver and/or RS-232 to control system. (See page 2-12.)
- Connect other devices/equipment using analog input/output. (See page 2-14.)
- Connect optional logic devices. (See page 2-15.)

- Connect AC power. (See page 2-19.)
- Configure devices using SoundStructure Studio software. (See page 2-20.)

Plug-in Card Installation

Each SoundStructure device can have a plug-in card installed for a total of eight plug-in cards in a collection of eight SoundStructure devices. When installing more than one plug-in card in an installation, it is recommended to use the plug-in slot from the top device first and continue sequentially down through the collection of devices as additional plug-cards are added.

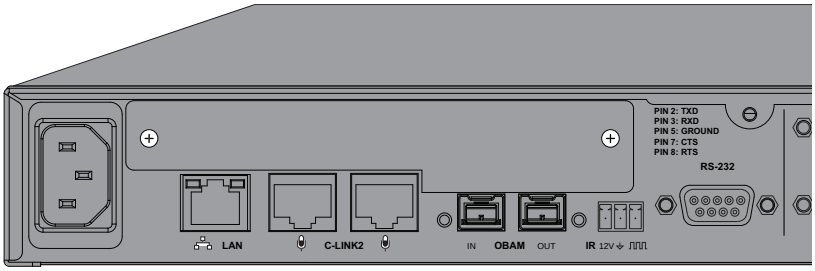
Warning

Do not insert a plug-in card while the SoundStructure is powered on.

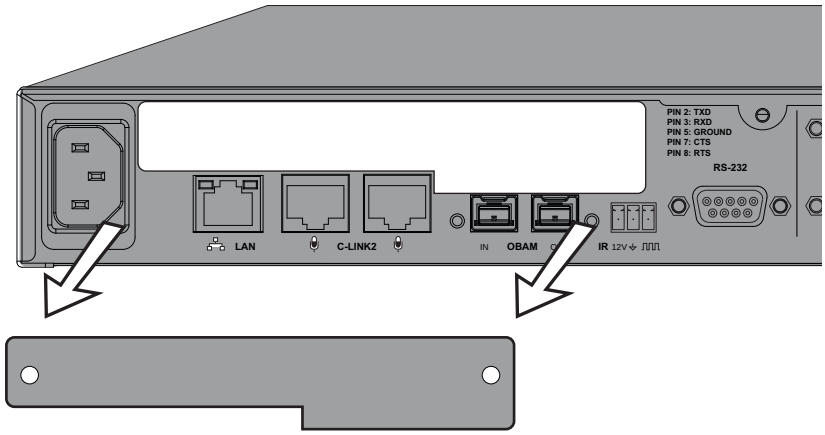
Failure to remove power prior to installing the plug-in card may damage the plug-in card and/or the SoundStructure device.

To install a plug-in card, follow these five steps:

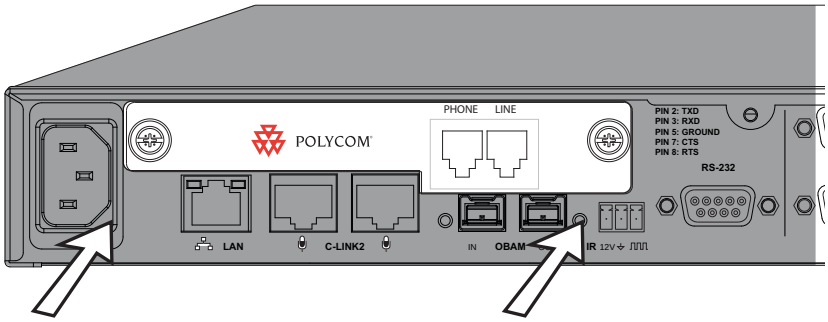
1. If plugged in, unplug the AC power cord from the SoundStructure device.



2. Remove the blank plate and screws from the expansion slot (see below).



3. Insert the plug-in card into the slotted rails and push until it is tight into the slot.



4. Tighten the thumbscrews on the rear-panel of the plug-in card.
5. If no further installation steps are required, plug in the AC power cable; otherwise, continue with the remainder of the installation steps prior to applying power.

Rack-Mounting The Polycom SoundStructure Device

The Polycom SoundStructure can be mounted in an equipment rack, or placed on a tabletop or other flat surface, or mounted under the table with the optional undertable mounting kit.

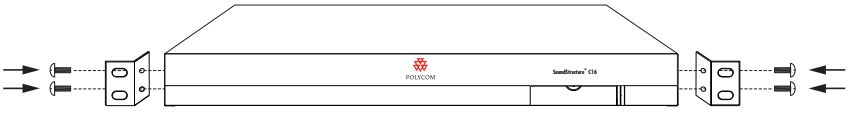
Each SoundStructure device requires one rack space and does not require additional empty rack spaces above or below the device.

When multiple devices are racked together, before final tightening of the rack mount screws on each device after the first one, ensure there is enough clearance so that the front-panel door will open freely.

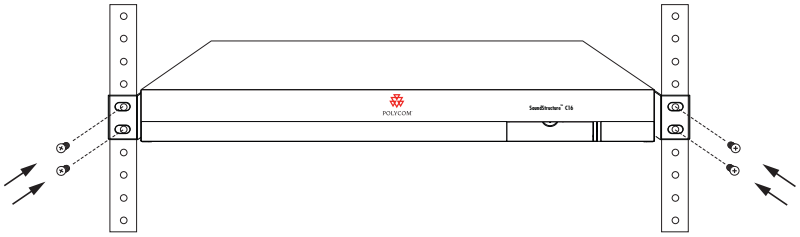
To rack-mount the SoundStructure unit:

1. Remove the four front screws on the enclosure.

2. Align the rack ears, and install the rack ears using the screws that were removed from the enclosure.

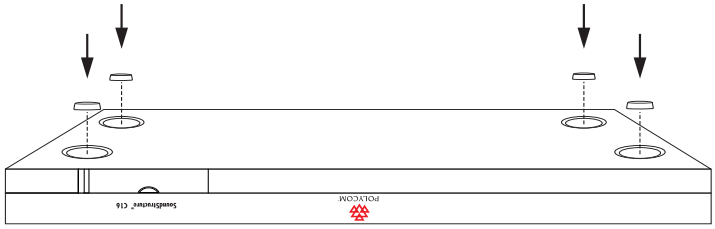


3. Mount the equipment in the rack and secure with the four supplied rack mount screws (screw size is 10-32x1/2").



To place on a tabletop or other flat surface:

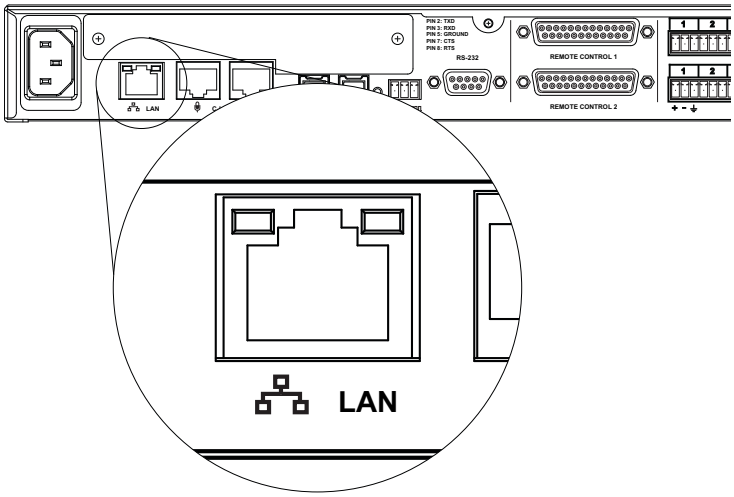
>> If the equipment will not be mounted in an equipment rack, it is recommended that you install the four adhesive rubber feet on the bottom of the device (as shown below) before placing the equipment on furniture.



Connecting To The LAN Interface

The SoundStructure device's Ethernet interface (as shown following figure) is a 10/100 Mbps interface that supports Auto-MDIX (medium dependent interface crossover).

Auto-MDIX enables the use of a standard CAT5e cable to connect directly from the SoundStructure device to either an Ethernet network or to a computer. The SoundStructure device will detect the connection and work appropriately.



By default the SoundStructure device has Dynamic Host Configuration Protocol (DHCP) enabled and will accept an IP address from a DHCP server. The SoundStructure device IP address can also be set to a static IP address using the SoundStructure Studio software.

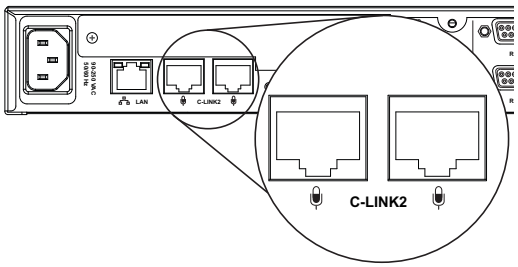
Do not plug the Ethernet cable in to the Conference Link2 ports. To minimize improper cabling, plastic plugs have been installed by default into the Conference Link2 ports.

Warning Connecting an Ethernet cable into the Conference Link2 interface of a SoundStructure device could damage the SoundStructure device.

Connecting To Other Polycom Equipment With Conference Link2

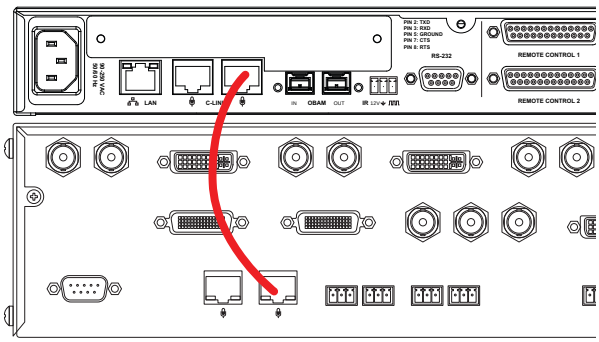
The Conference Link2 interface (shown in the following drawing and labeled C-Link2) is used to connect the SoundStructure devices to other Polycom equipment such as a Polycom HDX system. There are two Conference Link2 interfaces on each SoundStructure device to support future connectivity to more than one Polycom device. The Conference Link2 ports on the SoundStructure devices have a plastic plug that must be removed before inserting a cable into the Conference Link2 ports. The Conference Link2 ports

have an RJ45 plug form-factor (with a different pinout from standard Ethernet cables - see Conference Link2 for pinout details) to enable field termination of custom length cables using standard RJ45 plugs and standard crimping tools.



Warning Connecting a Conference Link2 cable to the Ethernet interface could damage the connecting device and/or the SoundStructure device.

Using the supplied 18" Conference Link2 cable, connect one Conference Link2 port on the SoundStructure device to a Polycom microphone Input port on the Polycom HDX system as shown in the following figure. If there are multiple SoundStructure devices linked together with OBAM Link, only one SoundStructure device should be connected to a Polycom HDX system.



Warning A CAT5e cable that is terminated with standard T568A or T568B pin/pair assignments will not work with Conference Link2. The Conference Link2 pinout is different from T568A or T568B pin/pair termination.

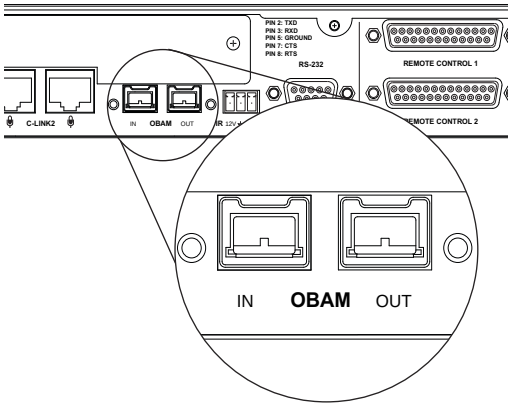
Do not use a standard Ethernet cable to connect SoundStructure to a Polycom HDX system.

If a longer Conference Link2 cable is required, one may be constructed using the custom pinout (see Conference Link2) and standard 8P8C (eight positions, eight conductors, e.g., RJ45) connectors, shielded Cat5e cable or better, and standard 8P8C crimping tools. Note that the maximum length between the Polycom HDX codec and the SoundStructure device is one hundred feet (30m).

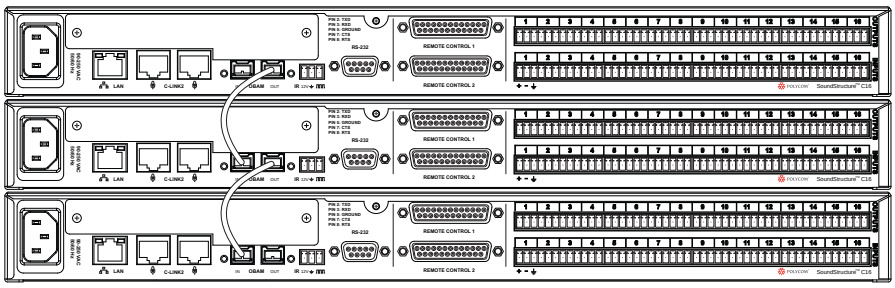
Warning Do not use Conference Link2 to connect multiple SoundStructure devices together. The OBAM link must be used for connecting multiple SoundStructure devices.

Using Multiple SoundStructure Devices With OBAM Link Interface

Each SoundStructure device has OBAM IN and OUT connectors (as shown in the following figure) that may be used to link up to eight SoundStructure devices[1].

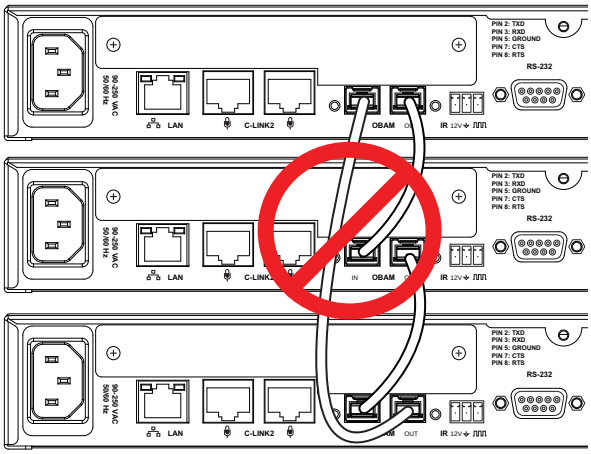


To link multiple SoundStructure devices, connect the OBAM OUT port on the first device (typically the top SoundStructure device in the equipment rack) to the OBAM IN port on the next SoundStructure device as follows.



[1] Firmware version 1.1 or higher is required for linking multiple devices.

Because the OBAM interface is bi-directional, data will flow in both directions on the single cable between devices. Due to this bi-directionality, do *not* loop the OBAM link connections (as follows).



Once the devices are connected over OBAM, the SoundStructure devices will behave as one large audio device, in other words, all the inputs from all the SoundStructure devices are available on all the devices. Any combination of SoundStructure C16, C12, C8, and SR12 devices may be linked together up to a total of eight devices.

When the SoundStructure devices are connected over the OBAM Link, the OBAM Input Status LED illuminates when there is a valid connection between the OBAM IN port on this device and an OBAM OUT port on a second SoundStructure device. This LED will not illuminate unless there is a valid connection between the two devices. The OBAM Output Status LED illuminates when there is a valid connection between the OBAM OUT port on this device and an OBAM IN port on a different SoundStructure device. This LED will not illuminate unless there is a valid connection between the two devices.

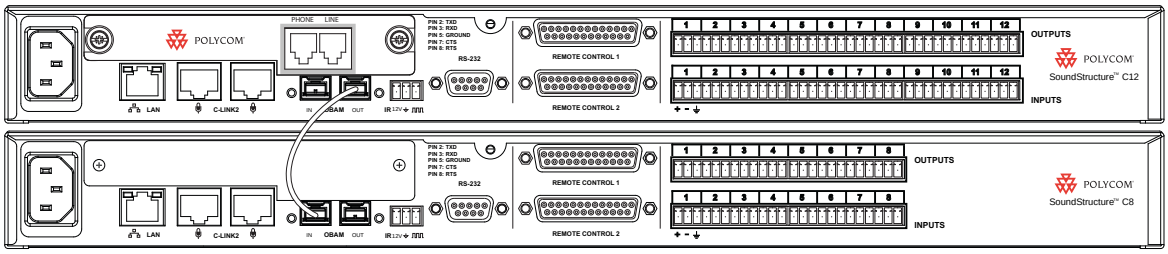
A 12-inch OBAM cable is provided with each SoundStructure device. Should longer OBAM cables be required, standard IEEE1394b "beta" cables may be used. The maximum length of any single link between devices is 10 feet (3 m). See OBAM Link for more details. An OBAM link cable may be tested by inserting the same cable into the OBAM IN and OBAM OUT ports. If the OBAM input and output status LEDs illuminate, the OBAM cable is fully functional.

Device ID's

When multiple devices are connected via the OBAM interface, internal SoundStructure device ID's are assigned automatically based on the OBAM connections. The device that has no OBAM IN connection will be device 1. The device connected to that unit will be device 2, and so on until the last device -

the device with no OBAM OUT connection. The device ID is important for ensuring that a system is cabled properly so that it matches the configuration that will be uploaded to the system.

As an example, consider the following figure that shows a SoundStructure C12 linked with a C8.



The SoundStructure Studio software can be used to create a design that will be uploaded into the devices. In this example, the configuration file requires devices to be linked together with the C12 as the first device (device ID 1) and the C8 as the second device (device ID 2). The wiring report summarizes the cabling connections for the input and output signals. A typical wiring report generated for the SoundStructure devices is shown in the following text.

This wiring report shows the signal connections to both the SoundStructure C12 at device ID 1, and the SoundStructure C8 at device ID 2. The report also indicates a telephony interface is plugged into the C12 and a Polycom HDX video codec is connected via the C-Link2 interface to the C12. This report also summarizes how the individual inputs and outputs should be connected to the rear-panel of the SoundStructure devices, for instance Table Mic 1 should be connected to input 1 on the SoundStructure C12.

```
SoundStructure system: New SoundStructure
C12 (bus id: 1)
C-Series Mic Input
 1: Table Mic 1
 2: Table Mic 2
 3: Table Mic 3
 4: Table Mic 4
 5: Table Mic 5
 6: Table Mic 6
 7: Table Mic 7
 8: Table Mic 8
 9: Table Mic 9
 10: Table Mic 10
 11: Table Mic 11
 12: Table Mic 12

C-Series Line Output
 1: Amplifier 1 (Left)
 2: Amplifier 1 (Right)
 3: Amplifier 2 (Left)
```

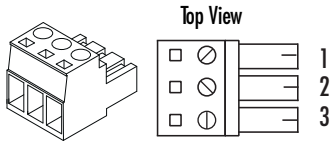
```
 4: Amplifier 2 (Right)

 Plugin Card: Single Line Telephone
 1: Phone In, Phone Out

 C-Link2 Interface: Polycom HDX


C8 (bus id: 2)
C-Series Mic Input
 1: Table Mic 13
 2: Table Mic 14
 3: Table Mic 15
 4: Table Mic 16
 5: Lectern Mic
 6: Wireless Mic
 7: Program Audio (Left)
 8: Program Audio (Right)
```

Wiring the system as described in the wiring report and linking multiple devices as indicated to ensure the device ID's of the system match the configuration file is an important step to having the system operate properly once the configuration file is uploaded to the devices.

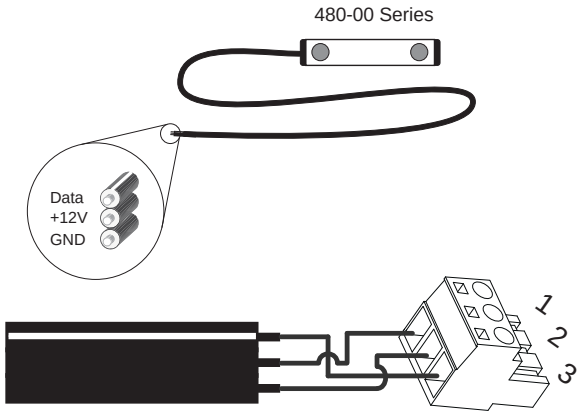
Connecting IR Port To Optional Receiver And/Or RS-232 To Control System

IR Port

The IR receiver port is compatible with IR receivers such as Xantech models 780-80, 780-90, 480-00, 480-80, and 490-00. Terminate the IR receiver into the supplied terminal block using the pinout shown in the following figure.

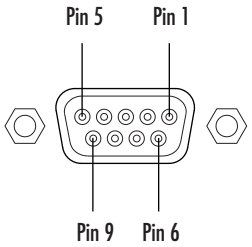


Pin	Signal
1	+12 V
2	Ground
3	IR Signal Data

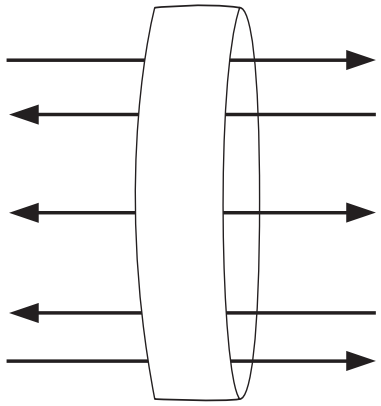


RS-232

The RS-232 interface is capable of running up to 115,200 bps and has a default rate of 9,600 bps, eight data bits, no parity, one stop bit (8-N-1). The pinout of the connection and the recommended straight-through cabling to a control system is shown in the following figure.



SoundStructure			Control System	
Pin	**Signal**		**Pin**	**Signal**
1	-		1	-
2	TX		2	RX
3	RX		3	TX
4	-		4	-
5	Ground		5	Ground
6	-		6	-
7	CTS		7	RTS
8	RTS		8	CTS
9	-		9	-



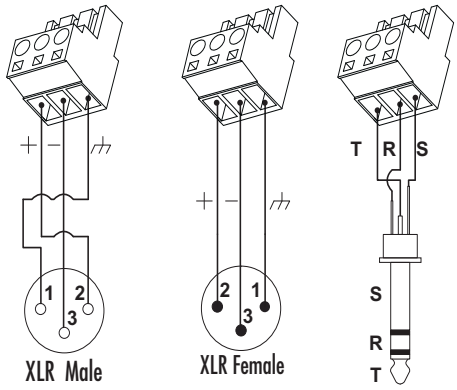
At rates at or above 38,400 bps, it is recommended that flow control be enabled on the control system. The SoundStructure device will detect the use of flow control automatically - no user adjustment is required to turn flow control on or off on the SoundStructure devices.

The maximum length of an RS-232 cable is determined by the overall capacitance of the cable. For practical purposes, the length of the RS-232 cable should not exceed fifty feet.

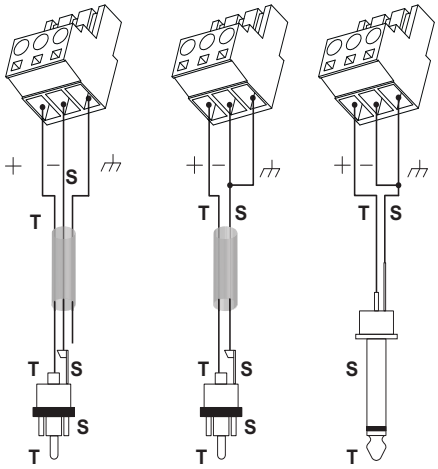
Making Audio Connections

SoundStructure devices provide balanced audio input and output connections that are terminated with 3.5 mm terminal blocks. For each balanced analog input or output on the SoundStructure rear-panel, the first pin should be connected to the positive signal, the second pin is connected to the negative signal, and the third pin is chassis ground as shown in the balanced audio

connections in the following figure. To connect the SoundStructure device's audio input and output to unbalanced audio equipment, follow the wiring in the unbalanced audio connections below.



Balanced Audio Connections



Unbalanced Audio Connections

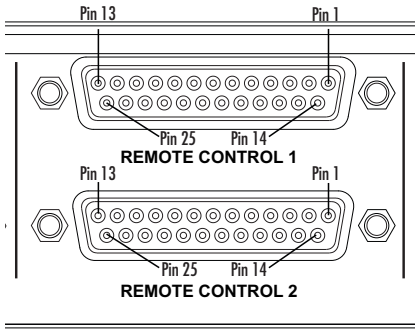
When using unbalanced audio sources or audio destinations connected to SoundStructure devices, either wiring techniques shown previously for connecting RCA jacks to terminal blocks may be used and both will result in the same voltage level at the tip of the RCA jack.

Connecting Logic Ports

There are two logic ports, called Remote Control 1 and Remote Control 2, on the rear-panel of each SoundStructure device. Each Remote Control connector includes eleven logic inputs, eleven logic outputs, an analog gain control input, a +5 V supply capable of providing up to 500 mA, and a logic ground.

Internal to the SoundStructure device is a fuse that will trigger if the current draw on Pin 1 exceeds 500 mA. The fuse will reset itself once the excessive load is removed.

As there are two logic connectors, there are a total of twenty-two logic inputs, twenty-two logic outputs, two analog gain inputs, and two +5 V supplies and two logic grounds per SoundStructure device. The pinouts and signal definition are shown in the following figures.



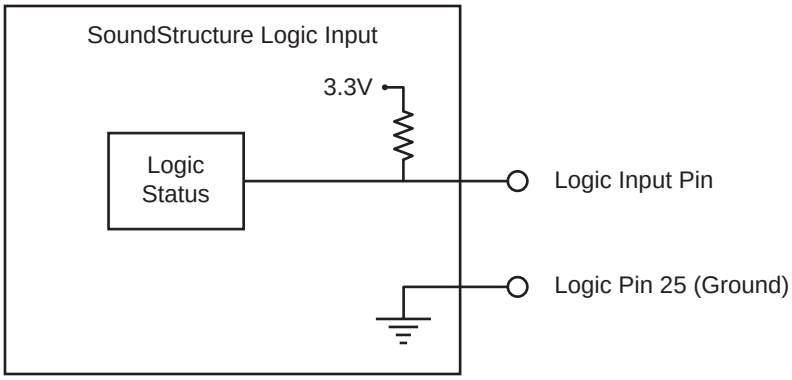
Remote Control 1			
Pin	**Signal**	**Pin**	**Signal**
1	+5 V	14	Logic Input 1
2	Logic Output 1	15	Logic Input 2
3	Logic Output 2	16	Logic Input 3
4	Logic Output 3	17	Logic Input 4
5	Logic Output 4	18	Logic Input 5
6	Logic Output 5	19	Logic Input 6
7	Logic Output 6	20	Logic Input 7
8	Logic Output 7	21	Logic Input 8
9	Logic Output 8	22	Logic Input 9
10	Logic Output 9	23	Logic Input 10
11	Logic Output 10	24	Logic Input 11
12	Logic Output 11	25	Ground
13	Analog Gain 1		

Remote Control 2			
Pin	**Signal**	**Pin**	**Signal**
1	+5 V	14	Logic Input 12
2	Logic Output 12	15	Logic Input 13
3	Logic Output 13	16	Logic Input 14
4	Logic Output 14	17	Logic Input 15
5	Logic Output 15	18	Logic Input 16
6	Logic Output 16	19	Logic Input 17
7	Logic Output 17	20	Logic Input 18

8	Logic Output 18	21	Logic Input 19
9	Logic Output 19	22	Logic Input 20
10	Logic Output 20	23	Logic Input 21
11	Logic Output 21	24	Logic Input 22
12	Logic Output 22	25	Ground
13	Analog Gain 2		

Logic Inputs

All digital logic inputs (logic inputs 1 - 22) operate as contact closures and may either be connected to ground (closed) or not connected to ground (open). The logic input circuitry is shown in the following figure. Chapter 4 Logic Examples provides examples of how to use the logic input pins.

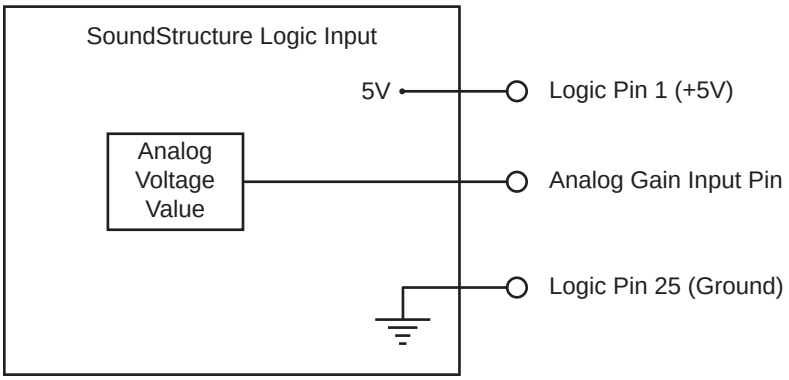


Analog Gain Input

The analog gain inputs (analog gain 1 and 2) operate by measuring an analog voltage between the analog input pin and the ground pin. The maximum input voltage level should not exceed +6 V. It is recommended that the +5 V supply on Pin 1 be used as the upper voltage limit.

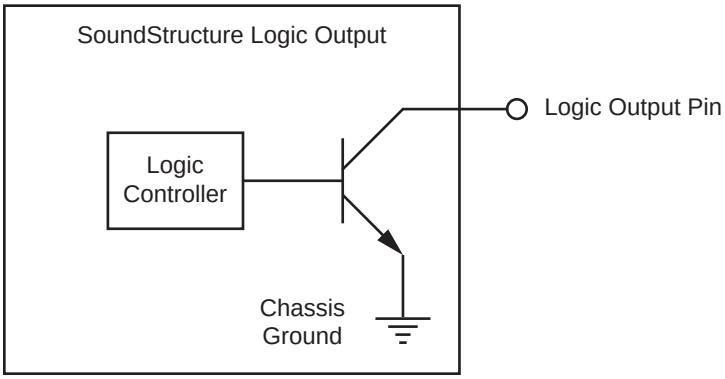
The following figure shows the analog gain input pin and the associated +5 V and ground pins that are used with the analog gain input pin. The analog voltage on the analog gain input pin is converted to a digital value via an 8-bit analog-to-digital converter for use within the SoundStructure devices. The maximum voltage value, i.e., 0 dBFS on the analog gain input, is 4.096 V. The SoundStructure API commands analog_gpio_min and analog_pio_max are used to map the values into a desired range of numerical values. By default 0 V is converted to 0 and 4.096 V and above is converted to 255.

Chapter 4 Logic Examples provides an example of how to use the analog gain input pin.



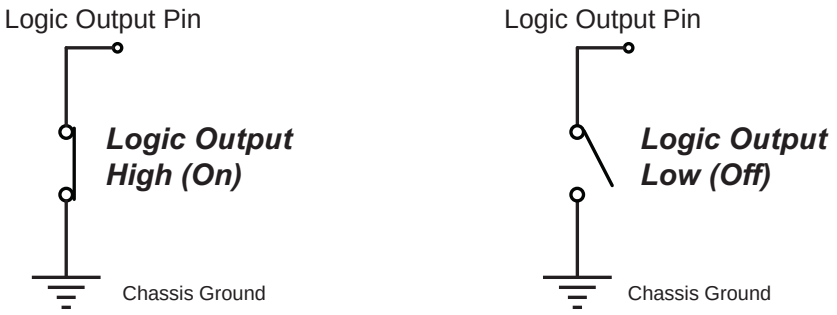
Logic Outputs

All logic outputs are configured as open-collector circuits and may be used with external voltage sources. The maximum voltage that should be used with the logic outputs is 60 V with a maximum current of 500 mA.



The open collector design is shown in the following figure and works as a switch as follows: when the logic output pin is set **high** (on), the transistor will turn on and the signal connected to the logic output pin will be grounded and current will flow from the logic output pin to chassis ground.

When the logic output is set **low** (off), the transistor will turn off and an open circuit will be created between the logic output and the chassis ground preventing any flow of current as shown in the following figure.



See Logic Examples for information on how to wire the logic interface for common logic applications.

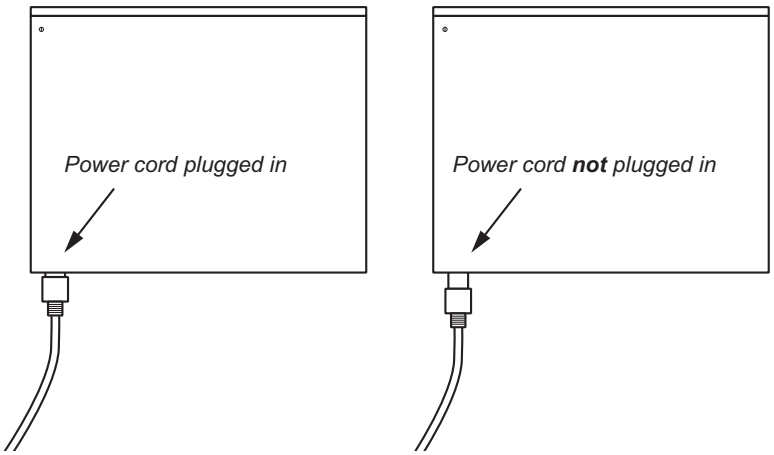
Powering Up The System

Connect the AC power line to a grounded AC power main when ready to power the device and plug the other end securely into the rear of the SoundStructure unit. Ensure the plug is securely inserted as shown in the following figure. Upon insertion there will be some initial resistance - continue pushing until the power cord is plugged in.

The SoundStructure units require an AC voltage supply in the range of 90-250 VAC and 50-60 Hz. Power should be applied after any plug-in cards are installed.

As there is no power switch on the SoundStructure devices, once power is connected, the system will begin the boot-up process.

For more information, see Front-Panel LED Interpretation.



Configuring The SoundStructure Devices

For information on configuring software for the SoundStructure, see the manual entitled **Design Guide for the Polycom SoundStructure C16, C12, C8, and SR12.**

3

Specifications

Technical Specifications

Dimensions

- 19" (483 mm) W x 13.5" (343 mm) L x 1.75" (45 mm) H (one rack unit)

Weight

- 12 lbs. (5.5 kg) dry, 14 lbs. (6.4 kg) shipping

Connectors

- RS-232: DB9F
- OBAM In/Out: IEEE 1394B
- CLINK2: RJ45
- LAN: RJ45
- Control/Status: DB25F
- Audio: Mini (3.5 mm) quick connect terminal blocks
- IR Receive: Mini (3.5 mm) quick connect terminal block

Power

- Internal power supply
- Input voltage of 90-250 VAC; 50-60 Hz
- Line power requirements (including 0.6 PF): 130 VA (C16), 115 VA (C12), 105 VA (SR12), 95 VA (C8)

Thermal

- Thermal Dissipation (Btu/hr): 266 Btu/hr (C16), 230 Btu/hr (C12), 215 Btu/hr (SR12), 200 Btu/hr (C8)
- Operating temperature 0 - 40° C (104° F)

Inputs

- Phantom power: 48 V DC through 6.8 kOhm series resistor per leg, 7.5 mA per channel, software selectable
- Analog input gain: -20 to 64 dB on all inputs in 0.5 dB steps, software adjustable
- Maximum input amplitude: +20.4 dBu, 1% THD + N
- Nominal level: 0 dBu (0.775 Vrms)
- Equivalent input noise: <-122 dBu, 20-20,000 Hz, Rs=150 Ohms (1%)
- Input impedance: 10 kOhms
- Input EMI Filter: Pi filter on all audio inputs

Outputs

- Output gain: -100 to 20 dB in 1 dB steps, software adjustable
- Maximum output amplitude: +23 dBu, 1% THD + N
- Nominal output level: 0 dBu (0.775 Vrms)
- Output impedance: 50 Ohm, each leg to ground, designed to drive loads > 600 Ohms
- Output EMI filter: Pi filter on all audio outputs

System

Unless noted, all values are valid for all channels at 0 dB input gain.

- Frequency response: 20-22,000 Hz, + 0.1 /- 0.3 dB
- Idle channel noise: <-109 dB FS no weighting, 20-20,000 Hz, -60dB FS, 997 Hz input signal, 0 dB gain
- Dynamic range: >109 dB FS no weighting, 20 - 20,000 Hz, -60 dB FS, 997 Hz input signal, 0 dB gain
- Linearity: 0 dB FS to -122 dB FS +/- 1 dB

- THD+N: < 0.005%, -20 dB FS input signal
- Common mode rejection ratio: <-61 dB, 20-20,000 Hz, no weighting
- Cross talk: <-110 dB, 20-20,000 Hz, 1kHz, channel-to-channel
- Latency: Mic/Line inputs to outputs: 20 ms, AEC and NC processing enabled
- Acoustic echo cancellation span: 200 ms
- Total cancellation: >65 dB
- Convergence rate: 40 dB/second
- Noise cancellation: 0-20 dB, software selectable
- Control inputs: contact closure
- Status outputs: open collector 60 V and 500 mA maximum total per outputs
- All signal ground pins connected to chassis ground through low impedance planes

Telco

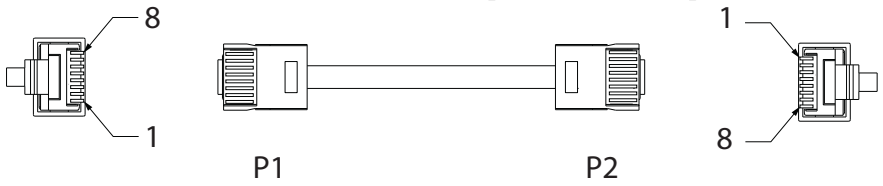
- Input gain: -100 to +20 dB in 1 dB steps, software adjustable
- Nominal transmit level: 0 dBu in SoundStructure device yields -15 to -17 dBm to phone (country code dependent)
- Off hook loop current: 10 mA (minimum) to 120 mA (maximum)
- Output gain: -100 to +20 dB in 1 dB steps, software adjustable
- Frequency response: 250-3300 Hz
- Dynamic range: >70 dB FS, 250-3300 Hz, "A" weighted

Pin Out Summary

Drawings and part numbers are provided for reference only. Other than cables provided by Polycom, Polycom claims no responsibility or liability for the quality, performance, or reliability of cables based on these reference drawings. Contact a Polycom reseller to order cables that meet the appropriate manufacturing tolerances, quality, and performance parameters for particular applications.

Conference Link2

To build a custom Conference Link2 cable, use shielded CAT5e, or better, and terminate both end connectors, P1 and P2, with standard 8P8C plugs (for example, RJ45) using the wiring connections shown in the following figure. The maximum length for this cable is 100 feet (30 m). Note that this cable provides a cross-over connection between pins 1 and 2 and pins 5 and 6.



COLOR	AWG	P1	P2
WHITE/GREEN	24	1	5
GREEN	24	2	6
WHITE/ORANGE	24	5	1
ORANGE	24	6	2
WHITE/BROWN	24	7	7
BROWN	24	8	8
DRAIN WIRE	24	3	3
SHIELD		SHELL	SHELL

P1 - RJ-45 shielded Keystone jack, L-com RJ110C5-S or equivalent,

or

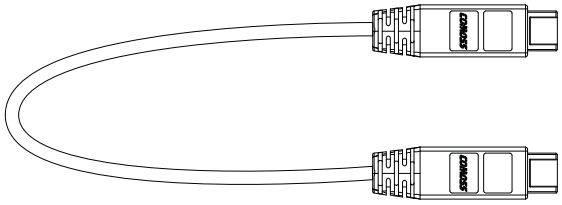
P1 - RJ-45 shielded plug, Tyco 5-569552 or equivalent with shielded RJ-45 panel coupler kit (L-com ECF504-SC5E or equivalent).

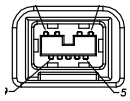
P2- RJ-45 shielded plug, Tyco 5-569552 or equivalent.

OBAM Link

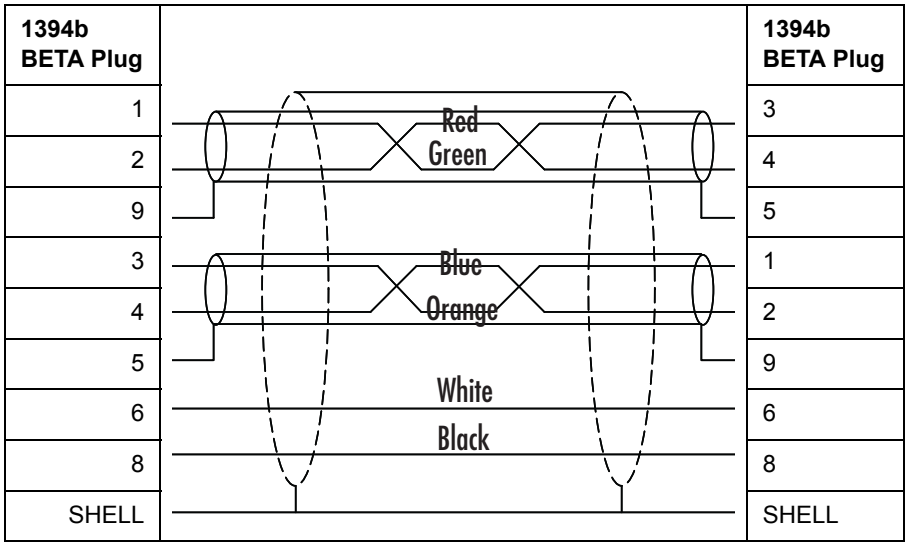
The OBAM cable is a standard 1394b BETA style cable. The maximum length of this cable is 10 feet (3 m).

While OBAM Link uses 1394b cables, the underlying bus protocol is not IEEE1394b compliant which means that external IEE1394b devices will not be compatible with OBAM Link. Using IEE1394b hubs or repeaters will not extend the length of OBAM and any non-SoundStructure approved device that is placed on the OBAM Link will prevent OBAM Link from operating properly.





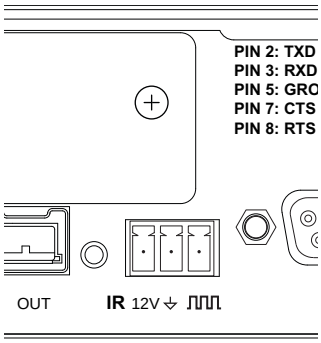
Connector Pinout



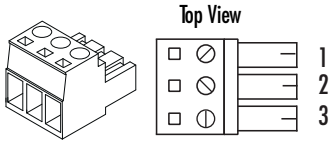
Pin 7 is not connected.

IR Receiver

The IR receiver port on the rear-panel of a SoundStructure device is shown in the following figure.



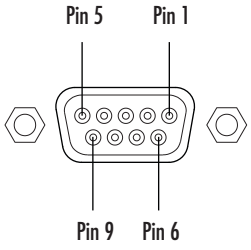
The IR receiver port accepts a standard 3.5 mm terminal block which should be terminated to the IR receiver as shown in the following figures.



Pin	Signal
1	+12 V
2	Ground
3	IR Signal Data

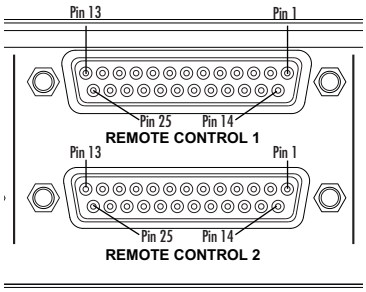
RS-232

The RS-232 interface requires a straight-through cabling to a control system as shown in the following figures.



SoundStructure			Control System	
Pin	**Signal**		**Pin**	**Signal**
1	-		1	-
2	TX		2	RX
3	RX		3	TX
4	-		4	-
5	Ground		5	Ground
6	-		6	-
7	CTS		7	RTS
8	RTS		8	CTS
9	-		9	-

Logic Interface



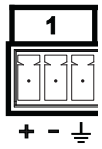
Remote Control 1			
Pin	**Signal**	**Pin**	**Signal**
1	+5 V	14	Logic Input 1
2	Logic Output 1	15	Logic Input 2
3	Logic Output 2	16	Logic Input 3
4	Logic Output 3	17	Logic Input 4
5	Logic Output 4	18	Logic Input 5
6	Logic Output 5	19	Logic Input 6
7	Logic Output 6	20	Logic Input 7
8	Logic Output 7	21	Logic Input 8
9	Logic Output 8	22	Logic Input 9
10	Logic Output 9	23	Logic Input 10

11	Logic Output 10	24	Logic Input 11
12	Logic Output 11	25	Ground
13	Analog Gain 1		

Remote Control 2			
Pin	**Signal**	**Pin**	**Signal**
1	+5 V	14	Logic Input 12
2	Logic Output 12	15	Logic Input 13
3	Logic Output 13	16	Logic Input 14
4	Logic Output 14	17	Logic Input 15
5	Logic Output 15	18	Logic Input 16
6	Logic Output 16	19	Logic Input 17
7	Logic Output 17	20	Logic Input 18
8	Logic Output 18	21	Logic Input 19
9	Logic Output 19	22	Logic Input 20
10	Logic Output 20	23	Logic Input 21
11	Logic Output 21	24	Logic Input 22
12	Logic Output 22	25	Ground
13	Analog Gain 2		

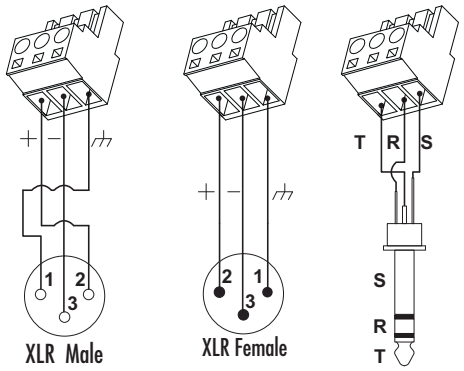
Audio Connections

SoundStructure devices provide balanced audio input and output connections that are terminated with 3.5 mm terminal blocks as shown in the following figure.

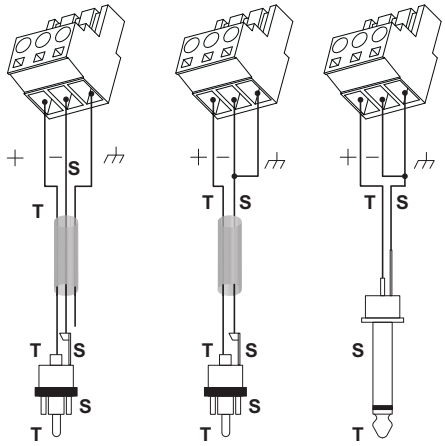


For each balanced analog input or output on the SoundStructure rear-panel, the first pin should be connected to the positive signal, the second pin is connected to the negative signal, and the third pin is chassis ground as shown in the balanced audio connections in the following figure. To connect the

SoundStructure device's audio input and output to other balanced or unbalanced audio equipment, follow the wiring convention in the unbalanced audio connections following figure.



Balanced Audio Connections



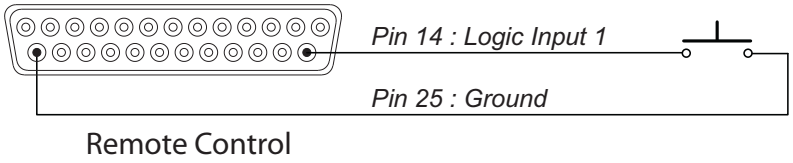
Unbalanced Audio Connections

4

Logic Examples

Logic Input

Contact Closure

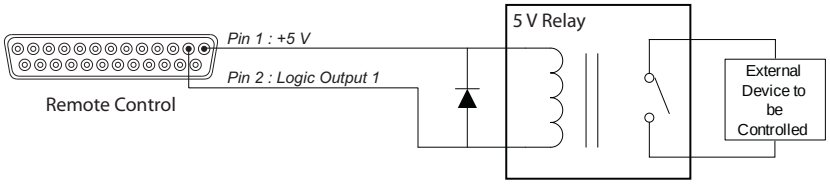


When the contact is closed, the logic input pin (Pin 14 in this example) is driven low (off). When the switch is open, the logic input pin will float high (on).

Typical applications may be push to mute or push to talk buttons or room combining for changing the device settings based on the room configuration.

Logic Output

SoundStructure Powered Relay

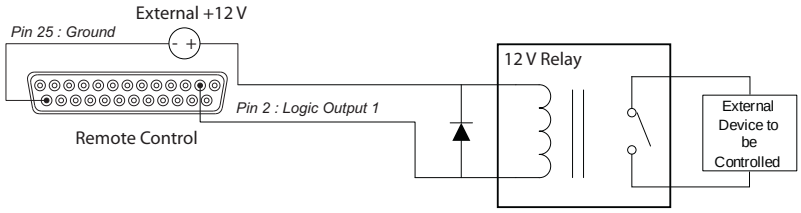


Relays rated for +5 V or lower may be driven directly from the +5 V logic connector pin 1 supply. Relays rated for more than +5 V will need an external power supply as described in the next example.

When the logic output (Pin 2 in this example) is set on (high), current flows from Pin 2 to ground and current that flows will energize the relay coil and close the relay contact. When the logic output is set off (low), current will stop flowing to the relay coil, causing the relay contact to open. A diode is recommended to be placed in parallel with the relay to provide a path for the discharge current of the magnetic coil of the relay. This current will discharge over a very short period of time and a diode capable of handling a large amount of surge current such as the IN4001 is recommended and is available from several manufacturers.

This example circuit uses an Omron G5CA relay and the coil resistance is 125 ohms. Because of this coil resistance, an additional series resistor is not required to limit the current from the 5 V supply to less than 500 mA in this example.

Externally Powered Relay



SoundStructure can be used with externally powered relays when the following conditions exist:

- The relay is DC powered.
- The DC voltage does not exceed 60 V.

- The current from the power supply and relay circuit does not exceed 500 mA.

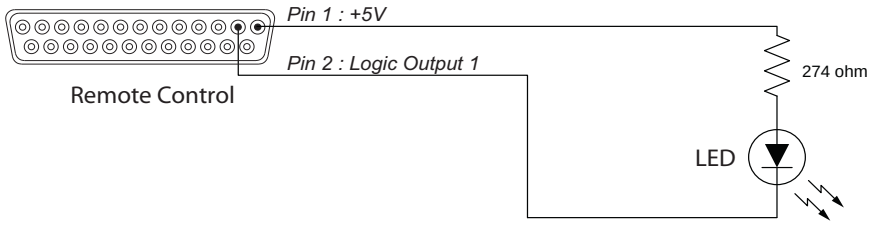
As with the 5 V relay example, when the logic output pin (Pin 2 in this example) is set on (high), the relay energizes and the relay contact is closed. When the logic output in is set off (low), current stops flowing, and the relay de-energizes and the relay contact is opened.

A diode is recommended to be placed in parallel with the relay to provide a path for the discharge of the magnetic coil of the relay. This current will discharge over a very short period of time and a diode capable of handling a large amount of surge current such as the IN4001 is recommended and is available from several manufacturers. The IN4001 is rated up to 50 V, if higher voltages are required, the IN4002 is rated to 100 V.

This circuit uses an Omron G7L 12 V relay with a coil resistance of 75 ohms. For this reason, an additional series resistor between the power supply and relay is not needed to ensure the current from the 5 V supply is less than 500 mA.

The ground connection of the power supply must be connected to the ground pin of the logic connector (Pin 25) in order for the return currents from the external power supply to be able to return to their source.

Driving An LED



SoundStructure logic outputs can be used to turn on or off LEDs. In this example when the logic output is driven high (on), current will flow, and the LED will turn on. When the logic output is set low (off), current will stop flowing, and the LED will turn off.

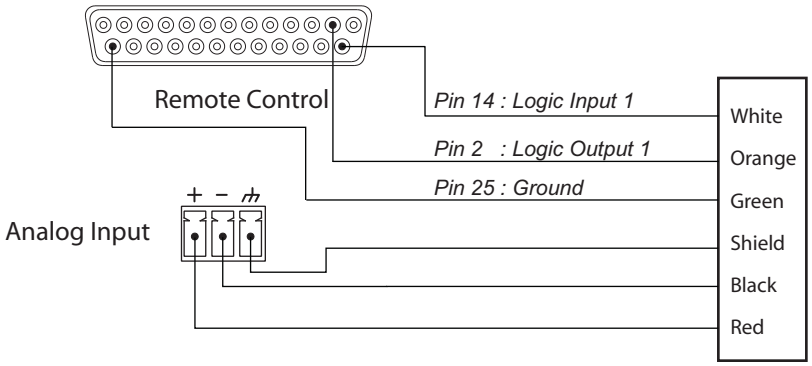
Most standard LEDs need about 2.0 V to illuminate. In this example a 274 ohm resistor is used to limit the current from Pin 1.

A series resistor must be used to limit the voltage and current to a safe level for the LED.

Increasing the series resistor value will decrease the current through the circuit and will also decrease the voltage at the input to the LED, reducing the brightness of the LED.

Logic Input And Output

Push To Talk Microphones

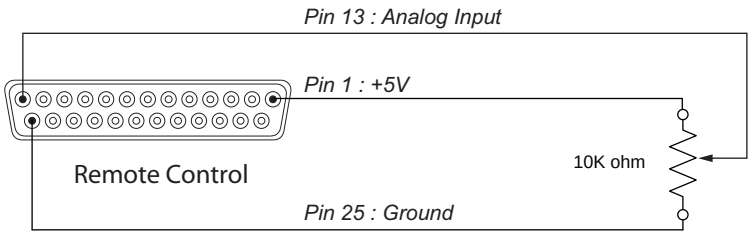


The SoundStructure devices may be used with push to talk microphones such as the Shure MX392.

When the orange (LED in) wire is connected to ground due to the SoundStructure logic output being turned on, the LED on the microphone will turn on. The LED is powered from the SoundStructure phantom power supply on the red and black cables. This means that the LED on the microphone does not need external power through a pull-up resistor on the orange (LED in) wire. The shield of the cable provides a ground for the entire audio and logic circuit even though there is a separate green wire for Logic Ground. This means that the green wire does not need to be connected to SoundStructure device. One could connect the green wire to the shield at the mic side and then only need to run a 4-conductor cable plus shield to the SoundStructure device, or one could run the microphone's logic ground to the ground on the logic connector.

No current-limiting resistors are needed between the microphone and the SoundStructure device as the current on the Orange (LED IN) wire when the LED is on is on the order of microamps.

Analog Gain Control

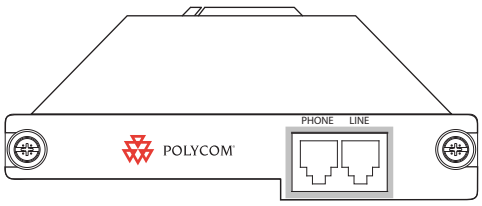
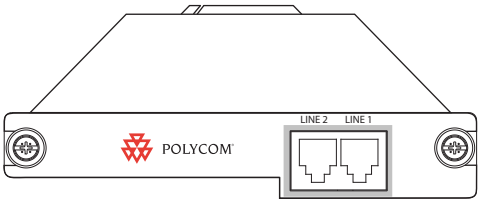
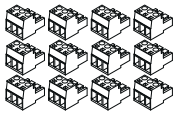


Pin 13 on each Remote control connector may be used with an analog potentiometer to provide an analog input signal that can be used to control volume or other settings within SoundStructure devices.

5

Accessories

The SoundStructure product family includes the following accessories, which can be purchased separately.

Single-Line PSTN Interface 2200-35003-001	
Dual-Line PTSN interface 2200-35004-001	
Terminal Blocks 2215-80031-001	
Audio Adapter Cable 2457-23492-001	

6

Regulatory Notices And Warranty Information

Regulatory Notices

USA And Canada

Pt 15 Rules

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: This device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

Class A Digital Device Or Peripheral

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Modifications

In accordance with part 15 of the FCC rules, the user is cautioned that any changes or modifications not expressly approved by Polycom Inc. could void the user's authority to operate the equipment.

Exhibit J - Customer Information

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the exterior of the cabinet of this equipment is a label that contains, among other information, a product identifier in the format **2HWTE01BSSTRUCTURE**. If requested, this number must be provided to the telephone company.

- ACTA Registration Number: **2HWTE01BSSTRUCT**
- Ringer Equivalence Number (REN): 0.1B
- Facility Interface Code (FIC): 02LS2
- Service Order Code (SOC): 9.0Y
- USOC Jack Type: RJ11C

A FCC compliant telephone cord and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack that is Part 68 compliant. See Installation Instructions for details.

The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. Typically, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line (as determined by the total RENs) contact the local telephone company.

If this equipment, Polycom SoundStructure TEL 1 and SoundStructure TEL 2 causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes to its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice so you can make the necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, Polycom SoundStructure TEL 1 and SoundStructure TEL 2, for repair or warranty information, please contact Polycom Inc., 4750 Willow Road, Pleasanton, CA 94588-2708 USA 408.526.9000. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Connection to party line service is subject to state tariffs. (Contact the state public utility commission, public service commission or corporation commission for information.)

Data Equipment

The table below shows which jacks are associated with which modes of operation:

Mode of Operation	USOC Jack
Permissive	RJ11C

Automatic Dialing

WHEN PROGRAMMING EMERGENCY NUMBERS AND/OR MAKING TEST CALLS TO EMERGENCY NUMBERS;

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities in the off-peak hours, such as early morning or late evening.

Canada

Canadian EMC Class A

English Statement:

This Class [A] digital apparatus complies with Canadian ICES-003.

French Statement:

Cet appareil numérique de la classe [A] est conforme à la norme NMB-003 du Canada.

This product meets the applicable Industry Canada technical specifications.

The **Ringer Equivalence Number** (REN) assigned to each relevant terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

The REN of this equipment is either marked on the unit or included in the new style USA (FCC registration number). In the case that the REN is included in the FCC number the user should use the flowing key to determine the value:

The FCC number is formatted as US: AAAEQ##TXXX.

is the Ringer Equivalence Number without a decimal point (e.g. REN of 1.0 = 10, REN of 0.3 = 03). In the case of a "Z" ringer, ZZ shall appear. In the case of approved equipment without a network interface and equipment not connecting to circuits with analog ringing supplied then "NA" shall appear.

EEA (European Economic Area) Including Switzerland

CE Mark R & TTE Directive

This SoundStructure has been marked with the CE mark. This mark indicates compliance with EEC Directives 89/336/EEC, 73/23/EEC 1999/5/EC. A full copy of the Declaration of Conformity can be obtained from Polycom Ltd, 270 Bath Road, Slough, Berkshire, SL1 4DX, UK.

Česky [Czech]:

Polycom (UK) Ltd tímto prohlašuje, _e tento *SoundStructure* je ve shodě se základními po_adavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.

Dansk [Danish]:

Undertegnede Polycom (UK) Ltd erklærer herved, at følgende udstyr *SoundStructure* overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.

Deutsch [German]:

Hiermit erklärt Polycom (UK) Ltd, dass sich das Gerät *SoundStructure* in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.

Eesti [Estonian]:

Käesolevaga kinnitab Polycom (UK) Ltd seadme *SoundStructure* vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.

English:

Hereby, Polycom (UK) Ltd. declares that this *SoundStructure* is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Español [Spanish]:

Por medio de la presente Polycom (UK) Ltd declara que el *SoundStructure* cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.

Ελληνική [Greek]:

ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Polycom (UK) Ltd ΔΗΛΩΝΕΙ ΟΤΙ *SoundStructure* ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.

Français [French]:

Par la présente Polycom (UK) Ltd déclare que l'appareil *SoundStructure* est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.

Italiano [Italian]:

Con la presente Polycom (UK) Ltd dichiara che questo *SoundStructure* è conformeai requisiti essenzi ali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.

Íslenska (Icelandic):

Hér með lýsir Polycom (UK) Ltd yfir því að *SoundStructure* er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 1999/5/EC

Latviski [Latvian]:

Ar šo Polycom (UK) Ltd deklarē, ka *SoundStructure* atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.

Lietuvių [Lithuanian]:

Šiuo Polycom (UK) Ltd deklaruoja, kad šis *SoundStructure* atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.

Nederlands [Dutch]:

Hierbij verklaart Polycom (UK) Ltd dat het toestel *SoundStructure* in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.

Malti [Maltese]:

Hawnhekk, Polycom (UK) Ltd, jiddikjara li dan *[SoundStructure]* jikkonforma mal-htigijiet essenzjali u ma provvedimenti ohrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.

Magyar [Hungarian]:

Alulírott, Polycom (UK) Ltd nyilatkozom, hogy a *SoundStructure* megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.

Norsk [Norwegian]:

Polycom (UK) Ltd erklærer herved at utstyret *SoundStructure* er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.

Polski [Polish]:

Niniejszym Polycom (UK) Ltd oświadcza, że *SoundStructure* jest zgodne z zasadniczymi wymaganiami oraz innymi stosownymi postanowieniami.

Polish Center for Testing and Certification Notice

The equipment should draw power from a socket with an attached protection circuit (a 3-prong socket). All equipment that works together (computer, monitor, printer, and so on) should have the same power supply source.

The phasing conductor of the room's electrical installation should have a reserve short-circuit protection device in the form of a fuse with a nominal value no larger than 16 amperes (A).

To completely switch off the equipment, the power supply cable must be removed from the power supply socket, which should be located near the equipment and easily accessible.

A protection mark "B" confirms that the equipment is in compliance with the protection usage requirements of standard PN-EN 55022.

Wymagania Polskiego Centrum Badań i Certyfikacji

Urządzenie powinno być zasilane z gniazda z przyłączonym obwodem ochronnym (gniazdo z kołkiem). Współpracujące ze sobą urządzenia (komputer, monitor, drukarka) powinny być zasilane z tego samego źródła.

Instalacja elektryczna pomieszczenia powinna zawierać w przewodzie fazowym rezerwową ochronę przed zwarciami, w postaci bezpiecznika o wartości znamionowej nie większej niż 16A (amperów).

W celu całkowitego wyłączenia urządzenia z sieci zasilania, należy wyjąć wtyczkę kabla zasilającego z gniazdka, które powinno znajdować się w pobliżu urządzenia i być łatwo dostępne. Znak bezpieczeństwa "B" potwierdza zgodność urządzenia z wymaganiami bezpieczeństwa użytkowania zawartymi w *PN-EN 60950:2000 i PN-EN 55022:2000*.

Jezeli na tabliczce znamionowej umieszczono informacje, ze urzadzenie jest klasy A, to oznacza, ze urzadzenie w srodowisku mieszkalnym moze powodowac zaklócenia radioelektryczne. W takich przypadkach mozna zadac od jego uzytkownika zastosowania odpowiednich srodków zaradczych.

Pozostałe instrukcje bezpieczeństwa

- Nie należy używać wtyczek adapterowych lub usuwać kołka obwodu ochronnego z wtyczki. Jeżeli konieczne jest użycie przedłużacza to należy użyć przedłużacza 3-żyłowego z prawidłowo połączonym przewodem ochronnym.
- System komputerowy należy zabezpieczyć przed nagłymi, chwilowymi wzrostami lub spadkami napięcia, używając eliminatora przepięć, urządzenia dopasowującego lub bezzakłóceniowego źródła zasilania.
- Należy upewnić się, aby nic nie leżało na kablach systemu komputerowego, oraz aby kable nie były umieszczone w miejscu, gdzie można byłoby na nie nadeptywać lub potykać się o nie.
- Nie należy rozlewać napojów ani innych płynów na system komputerowy.
- Nie należy wpychać żadnych przedmiotów do otworów systemu komputerowego, gdyż może to spowodować pożar lub porażenie prądem, poprzez zwarcie elementów wewnętrznych.
- System komputerowy powinien znajdować się z dala od grzejników i źródel ciepła. Ponadto, nie należy blokować otworów wentylacyjnych. Należy unikać kładzenia luźnych papierów pod komputer oraz umieszczania komputera w ciasnym miejscu bez możliwości cyrkulacji powietrza wokół niego.

Dyrektywy 1999/5/WE.

Português [Portuguese]:

Polycom (UK) Ltd declara que este *SoundStructure* está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.

Slovensko [Slovenian]:

Polycom (UK) Ltd izjavlja, da je ta *SoundStructure* v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.

Slovensky [Slovak]:

Polycom (UK) Ltd týmto vyhlasuje, _e *SoundStructure* spĺňa základné po_iadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.

Suomi [Finnish]:

Polycom (UK) Ltd vakuuttaa täten että *SoundStructure* tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

Svenska [Swedish]:

Härmed intygar Polycom (UK) Ltd att denna *SoundStructure* står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

EU Czech republic

This device belongs to Class B devices as described in EN 55022, unless it is specifically stated that it is a Class A device on the specification label. The following applies to devices in Class A of EN 55022 (radius of protection up to 30 meters). The user of the device is obliged to take all steps necessary to remove sources of interference to telecommunication or other devices.

Pokud není na typovém štitku počítače uvedeno, že spadá do třídy A podle EN 55022, spadá automaticky do třídy B podle EN 55022. Pro zařízení zařazená do třídy A (ochranné pásmo 30m) podle EN 55022 platí následující. Dojde-li k rušení telekomunikačních nebo jinych zařízení, je uživatel povinen provést taková opatření, aby rušení odstranil.

Australia

Mains powered POT's Voice Telephony without Emergency 000 dialing

Warning

This equipment will be inoperable when mains power fails

Reference: AS/ACIF S002:2001 (incorporating Amdt 1) DECEMBER 2001

Clause 5.1.8.4 Provision of power-fail advice

Japan (VCCI)

Class A ITE

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスA 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Korea

Class A

A급 기기 (업무용 정보통신기기)

이 기기는 업무용으로 전자파적합등록을 한 기기이오니

판매자 또는 사용자는 이 점을 주의 하시기 바라며, 만약

잘못판매 또는 구입하였을 때에는 가정용으로 교환하시기

바랍니다.

Rest Of World

EMC. CLASS A ITE

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Installation Instructions*

Installation must be performed in accordance with all relevant national wiring rules

Plug acts as Disconnect Device*

The socket outlet to which this apparatus is connected must be installed near the equipment and must always be readily accessible

Warranty Information

LIMITED WARRANTY

Polycom warrants to the end user ("Customer") that the product will be free from defects in workmanship and materials, under normal use and service, for one year, or such longer period as Polycom may announce publicly from time to time for particular products, from the date of purchase from Polycom or its authorized reseller.

Polycom's sole obligation under this express warranty shall be, at Polycom's option and expense, to repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or if neither of the two foregoing options is reasonably available, Polycom may, in its sole discretion, refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of Polycom. Replacement products or parts may be new or reconditioned. Polycom warrants any replaced or repaired product or part for ninety (90) days from shipment, or the remainder of the initial warranty period, whichever is longer.

Products returned to Polycom must be sent prepaid and packaged appropriately for safe shipment and it is recommended that they be insured or sent by a method that provides for tracking of the package. Responsibility for loss or damage does not transfer to Polycom until the returned item is received by Polycom. The repaired or replaced item will be shipped to Customer, at Polycom's expense, not later than thirty (30) days after Polycom receives the defective product, and Polycom will retain risk of loss or damage until the item is delivered to Customer.

EXCLUSIONS. POLYCOM WILL NOT BE LIABLE UNDER THIS LIMITED WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT OR MALFUNCTION IN THE PRODUCT DOES NOT EXIST OR RESULTS FROM:

- FAILURE TO FOLLOW POLYCOM'S INSTALLATION, OPERATION, OR MAINTENANCE INSTRUCTIONS.
- UNAUTHORIZED PRODUCT MODIFICATION OR ALTERATION.
- UNAUTHORIZED USE OF COMMON CARRIER COMMUNICATION SERVICES ACCESSED THROUGH THE PRODUCT.
- ABUSE, MISUSE, NEGLIGENT ACTS OR OMISSIONS OF CUSTOMER AND PERSONS UNDER CUSTOMER'S CONTROL; OR
- ACTS OF THIRD PARTIES, ACTS OF GOD, ACCIDENT, FIRE, LIGHTING, POWER SURGES OR OUTAGES, OR OTHER HAZARDS.

WARRANTY EXCLUSIVE. IF A POLYCOM PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, CUSTOMER'S SOLE REMEDY FOR BREACH OF THAT WARRANTY SHALL BE REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT POLYCOM'S OPTION. TO THE FULL EXTENT ALLOWED BY LAW, THE FOREGOING WARRANTIES

AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, TERMS, OR CONDITIONS, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES, TERMS, OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, CORRESPONDENCE WITH DESCRIPTION, AND NON-INFRINGEMENT, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. POLYCOM NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE OR USE OF ITS PRODUCTS.

SUPPORT & SERVICE AGREEMENTS. If you purchased your product from a Polycom Authorized Reseller, contact the Authorized Reseller for information about support and service agreements applicable to your product.

For information on Polycom service, go to the Polycom web site www.polycom.com, products and services menu, or call 1-800-765-9266, outside the US call 1-408-526-9000, or your local Polycom Office, as listed on the Polycom Web site.

LIMITATION OF LIABILITY. TO THE FULL EXTENT ALLOWED BY LAW, POLYCOM EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATA, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF ITS PRODUCTS, EVEN IF POLYCOM OR ITS AUTHORIZED RESELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE

PRICE PAID, AT POLYCOM'S OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.

DISCLAIMER. Some countries, states, or provinces do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages for certain products supplied to consumers, or the limitation of liability for personal injury, so the above limitations and exclusions may be limited in their application to you. When the implied warranties are not allowed to be excluded in their entirety, they will be limited to the duration of the applicable written warranty. This warranty gives you specific legal rights which may vary depending on local law.

GOVERNING LAW. This Limited Warranty and Limitation of Liability shall be governed by the laws of the State of California, U.S.A., and by the laws of the United States, excluding their conflicts of laws principles. The United Nations Convention on Contracts for the International Sale of Goods is hereby excluded in its entirety from application to this Limited Warranty and Limitation of Liability.